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Observing and Predicting the Atlantic Meridional Overturning Circulation (Fridtjof Nansen Medal Lecture)

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I will review the history of ideas that led to the establishment of the monitoring system for the Atlantic Meridional Overturning Circulation (AMOC) at 26.5°N. The results show a magnitude of AMOC variability that surprised most people. I will discuss a number of applications of the AMOC observations, including: Can models simulate the observed AMOC variability? When might a secular change in the AMOC be detectable against its natural variability? What is the potential for decadal prediction of the AMOC and North Atlantic temperatures? I will end on discussing the indirect yet profound role that Fritz Schott played in establishing the AMOC monitoring system.